

CURRICULUM VITAE

Name:	Russell D. Vetter
Address and Position:	Research Physiologist, Team Leader National Oceanic and Atmospheric Administration Southwest Fisheries Science Center 8604 La Jolla Shores Drive P. O. Box 271 La Jolla, CA 92038-0271 (858) 546-7125 e-mail RVETTER@UCSD.EDU
Education:	B.S. Southampton College, N.Y., cum laude, 1973 M.S. University of Texas, Dept. of Zoology 1977 Ph.D. University of Georgia, Inst. of Ecology 1983
Government Service:	United States Peace Corps (Ethiopia, Africa), 1973-75
Honors and Awards:	Sterrer Fellowship, Bermuda Biological Station, 1989 Andrew Mellon Foundation Fellow, 1985-1987 University Fellowship, Univ. of Georgia 1981-1983 New York Regents Scholar 1969-1973
Research Interests:	Biochemical Adaptations to Environmental Stress Larval Ecology of Marine Fishes Molecular Genetics of Marine Fish
Research and Teaching Experience:	
1992-present	Leader, Genetics and Physiology Program, SWFSC, NOAA
1990-1992	Research Physiologist, SWFSC, NOAA
1990-present	Advisor, National Research Council, Research Associate Program
1985-1992	Research Scientist, Scripps Institution of Oceanography
1986-1992	Member, Marine Biology Curricular Group, SIO, graduate teaching faculty
1983-1985	Postdoctoral Associate, with George N. Somero, Sulfur biochemistry of hydrothermal vent organisms, Scripps Institution of Oceanography
1978-1983	Research Assistant, with John S. Patton, Absorption of lipid soluble carcinogens in fish, NIH, Ph.D. Research Dept. of Microbiol, Univ. of Georgia.
1975-1977	Research Assistant, with Donald E. Wohlschlag, Metabolic effects of salinity and temperature in estuarine fish, M.S. research, University of Texas
1973-1975	Peace Corps Volunteer, Ethiopia, Africa: Secondary science teacher and development coordinator, Dahlac Island Marine National Park.

Teaching Activities: (NOAA tenure only)

Graduate Students Supervised:

Shawn Narum: 1998-present, co-chair, MS, Univ. San Diego
Jason Stannard: 1996-present, co-chair, MS, Cal Poly. San Luis Obispo
Cynthia Taylor: 1996-1997, co-chair, MS, SDSU
Cynthia Taylor: 1997-present, co-chair, Ph.D. SIO
Axayacatl Rocha-Olivares 1994-1998, member, Ph.D., SIO
David Catarino 1992, member, MS, SDSU

Postdoctoral Associates:

Vincent Buonaccorsi: NRC Fellow, 1998-present
Mark Westerman: NSF postdoc, NRC Fellow, 1995-1998
Blaise Eitner: NRC Fellow, 1994-1997
Oscar Gaggiotti: NRC Fellow, 1994-1996
Edward Goolish: NRC Fellow, 1991-1994

Professional Service: (NOAA tenure only)

- a. Proposal reviews: NSF Biological Oceanography, NSF Polar Programs, NOAA Sea Grant, NOAA Saltonstall-Kennedy, NOAA National Undersea Research Program, others
- b. Journal reviews: Fishery Bulletin, Canadian Journal of Fisheries and Aquatic Sciences, Marine Biology, Marine Ecology Progress Series, Limnology and Oceanography, others
- c. NOAA committees: Essential Fish Habitat Implementation Committee, MEXUS-Pacifico,
- d. Outreach: NSF Summer Undergraduate Research Fellowships, NOAA Junior Fellowships

Professional Societies: (NOAA tenure only)

American Association for the Advancement of Science
American Fisheries Society
American Society of Zoologists
American Society of Limnology and Oceanography
Sigma Xi

Publications: prepared 4/99 (published abstracts and technical reports not included)

1. Vetter, R. D. 1982. Seasonal metabolic compensation in sympatric seatrout: Adaptation to the estuary. *Trans. Amer. Fish. Soc.* 111: 193-198.
2. Vetter, R. D. and R. E. Hodson, 1982. Use of adenylate concentrations and adenylate energy charge as indicators of hypoxic stress in estuarine fish. *Can. Jour. Fish. and Aquat. Sci.* 39 : 535-542.
3. Vetter, R. D., R. E. Hodson, and C. Arnold. 1983. Energy metabolism in a rapidly developing marine fish egg *Sciaenops ocellata*. *Can. Jour. Fish. and Aquat. Sci.* 40: 627-634.
4. Vetter, R. D. 1983. Doctoral Dissertation- The uptake of hydrophobic toxicants and the biochemical measurement of stress in marine fishes. Univ. of Georgia, Athens, Georgia.
5. Laher, J., M. W. Rigler, R. D. Vetter, J. A. Barrowman and J. S. Patton. 1984. Relative bioavailability and lymphatic transport of benzo(a)pyrene when administered in dietary fat. *Jour. of Lip. Res.* 25 1337-1342.
6. Vetter, R. D. and R. E. Hodson. 1984. Metabolic indicators of sublethal stress: Changes in adenine nucleotides, glycogen and lipid. In Concepts in Marine Pollution Measurements. H. White (ed.), pp. 471-498. Maryland Sea Grant Press. University Park, Maryland.
7. Vetter, R. D., M. C. Carey and J. S. Patton. 1985. Co-assimilation of dietary fat and benzo(a)pyrene: an absorption model using the killifish. *Jour. Lip. Res.* 26 428-433.
8. Vetter, R. D. 1985. Elemental sulfur in the gills of bivalves containing chemoautotrophic symbiotic bacteria: inorganic energy storage compound. *Marine Biology* 88 33-42.
9. Patton, J. S., R. D. Vetter, M. Hamosh, B. Borgstrom, M. Lindstrom, and M. C. Carey. 1985. The light microscopy of fat digestion. *Food Microstructure* 4 29-41.
10. Vetter, R. D., H. M. Hwang, and R. E. Hodson. 1986. Comparison of glycogen and adenine nucleotides as indicators of metabolic stress in mummichogs. *Trans. Amer. Fish. Soc.* 115: 47-51.
11. Vetter, R. D., M. E. Wells, A. L. Kurtsman, and G. N. Somero. 1987. Sulfide detoxification by the hydrothermal vent crab *Bythograea thermydron* and other decapod crustaceans. *Physiol. Zool.* 60: 121-137.
12. Arp, A. J., J. J. Childress, and R. D. Vetter. 1987. The sulfide-binding protein in the blood of the vestimentiferan tube-worm *Riftia pachyptila* is the extracellular haemoglobin. *J. exp. Biol.* 128: 139-158.
13. Powell, M. A., R. D. Vetter, and G. N. Somero. 1987. Sulfide detoxification and energy exploitation by marine animals. In Comparative Physiology : Life in Water and on Land. P. Dejours, L. Bolis, C. R. Taylor and E. R. Weibel (eds.) pp. 241-250, Fidia Research Series, IX, Liviana Press, Padova.

14. Van Veld, P. A., R. D. Vetter, R. F. Lee and J. S. Patton. 1987. Dietary fat inhibits the intestinal metabolism of the carcinogen benzo(a)pyrene in fish. *J. Lip. Res.* 28 : 810-817.
15. Brooks, J. M., M. C. Kennicutt II, C. R. Fisher, S. K. Mako, K. Cole, J. J. Childress, R. R. Bidigare and R. D. Vetter. 1987. Deep-sea hydrocarbon seep communities: Evidence for energy and nutritional carbon sources. *Science* 238 :1138-1142.
16. Matrai, P. A., and R. D. Vetter. 1988. Particulate thiols in coastal marine waters: The effect of light and nutrients on planktonic production. *Limnol. and Oceanog.* 33:624-631.
17. Vernet, M., J. Hunter and R. D. Vetter. 1988. Accumulation of age pigments (lipofuscin) in two cold-water fishes. *Fisheries Bulletin*. 86 : 401-407.
18. Stein, J. L., C. Cary, J. J. Childress, R. R. Hessler, S. Ohta, R. D. Vetter, and H. Felbeck, 1988. Chemoautotrophic symbiosis in a hydrothermal vent gastropod. *Biological Bulletin*. 174: 373-378.
19. Cary, C., B. Fry, H. Felbeck and R. D. Vetter. 1988. Multiple trophic resources for a chemoautotrophic community at a cold water brine seep at the base of the Florida escarpment. *Marine Biology*. 100: 411-418.
20. Vetter, R. D., P. A. Matrai,B. Javor and J. O'Brien. 1989. Reduced sulfur compounds in the Marine Environment: Analysis by HPLC. In *Biogenic Sulfur in the Environment*. E. S. Saltzman and W. J. Cooper (eds.) Amer. Chem. Soc.Symp. Ser. 393 ,pp.243-261. ACS Books. Washington, D.C.
21. Cary, C. A., R. D. Vetter, and H. Felbeck. 1989. The sulfur environment and sulfur chemistry of the symbiotic sulfur metabolizing bivalve *Lucinoma aequizonata*. *Mar. Ecol. Prog. Ser.* 55:31-45.
22. Bagarinao, T. and R. D. Vetter. 1989. Sulfide tolerance and detoxification in shallow-water marine fishes. *Mar. Biol.* 103: 291-302.
23. Vetter, R. D. and T. Bagarinao. 1990. Detoxification and exploitation of hydrogen sulfide by marine organisms. In Proceedings of International Conference on Hydrogen Sulfide Toxicity, Banff, Alberta, Canada. M. G. Prior,S. H. Roth, F. H. Y. Green, W. C. Hulbert, and R. Reiffenstein (eds). pp. 99-116.
24. O'Brien, J. and R. D. Vetter. 1990. Production of thiosulfate during sulfide oxidation by mitochondria of the symbiont containing bivalve *Solemya reidi*. *J. exp. Biol.* 149: 133-148.
25. Arp, A. J., G. N. Somero and R. D. Vetter. 1990. Sulfide transport, detoxification and exploitation. in McGraw-Hill Yearbook of Science and Technology, 1990 pp. 150-154. McGraw-Hill, New York.
26. Vetter, R. D. 1990. Cultured gill filaments from *Solemya reidi*: a model system for the study of thiotrophic symbioses. In *Endocytobiology IV*. P. Nardon, V. Gianinazzi-Pearson, A. M. Greneir, L. Margulis and D. C. Smith (eds) . Institut National de la Recherche Agronomique, Paris, France. pp. 349-352.

27. Fiala-Medioni, A., Felbeck, H., Childress, J. J., Fisher, C. R., and Vetter, R. D. 1990. Lysosomic resorption of bacterial symbionts in deep-sea bivalves. In *Endocytobiology IV*. P. Nardon, V. Gianinazzi-Pearson, A. M. Greneir, L. Margulis and D. C. Smith (eds) . Institut National de la Recherche Agronomique, Paris, France.
28. Wilmot, D. B., Jr. and R. D. Vetter. 1990. The bacterial symbiont from the hydrothermal vents tubeworm *Riftia pachyptila* is a sulfide specialist. *Mar. Biol.* 106: 273-283.
29. Javor, B., D. B. Wilmot Jr., R. D. Vetter. 1990. pH -dependent metabolism of thiosulfate and sulfur globules in the chemoautotrophic marine bacterium *Thiomicrospira crunogena*. *Arch Microbiol.* 154: 231-238.
30. Bagarinao, T. and R. D. Vetter. 1990. Oxidative detoxification of sulfide by mitochondria of the California killifish *Fundulus parvipinnis* and the speckled sanddab *Citharichthys stigmaeus* J. *Comp Physiol.B.* 160: 519-527.
31. Vetter, R. D., M. A. Powell, and G. N. Somero. 1991. Metazoan adaptations to hydrogen sulphide. In: *Metazoan Life Without Oxygen*. C. Bryant (ed.) Chapman and Hall, London. pp.109-128.
32. Vetter, R. D. Symbiosis and novel energy sources: chemoautotrophic organisms at hydrothermal vents. 1991. In *Symbiosis as a Source of Evolutionary Innovation: Speciation and Morphogenesis*. L. Margulis and R. Fester (eds.) The MIT Press, Cambridge, Ma. pp.219-245.
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34. Wilmot, D. and R. D. Vetter. 1992. Oxygen- and nitrogen-dependent sulfur metabolism in the thiotrophic clam *Solemya reidi*. *Biol. Bull.* 182: 444-453.
35. Oeschger, R. and R. D. Vetter. 1992. Sulfide detoxification and tolerance in *Halicryptus spinulosus* (Priapulida): a multiple strategy. *Mar. Ecol. Prog. Ser.* 86:167-179.
36. Bagarinao, T. and R. D. Vetter. 1992. Sulfide-hemoglobin interactions in the sulfide-tolerant salt marsh resident, the California killifish *Fundulus parvipinnis*. *J. Comp. Physiol. B* 162: 614-624.
37. Bagarinao, T. and R. D. Vetter. 1993. Sulphide tolerance and adaptation in the California killifish, *Fundulus parvipinnis*, a salt marsh resident. *Jour. Fish Biol.* 42: 729-748.
38. Vetter, R. D. 1994. Genetics of the fauna of the California Current. *Calif. Coop. Oceanic Fish. Invest. Rep.* 34: 43-44.
39. Vetter, R. D., Lynn, E. A., Garza, M. and A. S. Costa. 1994. Depth zonation and metabolic adaptation in Dover sole, *Microstomus pacificus*, and other deepliving flatfishes: factors that affect the sole. *Mar. Biol.* 120: 145-149.
40. Siebeck, O., Vail, T., Williamson, C. , Vetter, R., Hessen, D., Zagarese, H., Little, E., Balseiro, E., Modenutti, B., Seva, J., Shumate, A. 1994. Impact of UV-B radiation on zooplankton and fish in pelagic freshwater ecosystems. *Arch. Hydrobiol., Beih. Ergebn. Limnol.* 43: 101-114.

41. Jacobson, L. D. and R. D. Vetter. 1996. Bathymetric demography and niche separation of thornyhead rockfish: *Sebastolobus alascanus* and *Sebastolobus altivelis*. *Can. Jour. Fish. Aquat. Sci.* 53:600-609.
42. Vetter, R. D. and E. A. Lynn. 1998. Bathymetric demography, enzyme activity patterns, and bioenergetics of deep-living scorpaenid fishes (genera *Sebastes* and *Sebastolobus*): paradigms revisited. *Mar. Ecol. Prog. Ser.* 155: 173-188.
43. Vetter, R. D., and B. Fry. 1998. Sulfur contents and sulfur isotopic compositions of thiotrophic symbioses in bivalve molluscs and vestimentiferan worms. *Mar. Biol.* 132: 453-460.
44. Eitner, B., C. Kimbrell and R. D. Vetter. 1999. *Sebastes moseri* (Scorpaeniformes: Scorpaenidae): a new rockfish from the eastern North Pacific. *Copeia*, 1999: 85-92.
45. Rocha-Olivares, A., C.A. Kimbrell, B. J. Eitner, and R. D. Vetter. 1999. Evolution of a mitochondrial cytochrome *b* gene sequence in the species-rich genus *Sebastes* (Teleostei, Scorpaenidae) and its utility in testing the monophyly of the subgenus *Sebastomus*. *Mol. Phylogenetic. and Evol.* 11:426-440
46. Rocha-Olivares, A., R. H. Rosenblatt, and R. D. Vetter. 1999. Molecular evolution, systematics and evolution of the rockfish subgenus *Sebastosomus* (*Sebastes*, Scorpaenidae) based on mitochondrial cytochrome *b* and control region sequences. *Mol. Phylogenetic. and Evol.* 11:441-458
47. Rocha-Olivares, A., R. H. Rosenblatt and R. D. Vetter. 1999. Cryptic species of rockfishes (Sebastes: Scorpaenidae) in the Southern Hemisphere inferred from mitochondrial lineages. *J. Hered.* (in press).
48. Rocha-Olivares, A. and R. D. Vetter. 1999. The influence of oceanography dominated gene-flow and historical demographic events in the mitochondrial DNA variation, genetic structure, and phylogeography of the rosethorn rockfish *Sebastes helvomaculatus*. *Can. J. Fish. Aquat. Sci.* (in press).
49. Vetter, R. D., A. Kurtzman, and T. Mori. 1999. Diel cycles of DNA damage and repair in larval northern anchovy, *Engraulis mordax*, exposed to natural sunlight. *Photochem. Photobiol.* 69: 27-33.
50. Gaggiotti, O. E. and R. D. Vetter. 1999. The effect of life history strategy, environmental variability, and overexploitation on the genetic diversity of pelagic fish populations. *Can. Jour. Fish. Aquat. Sci.* (in press).
51. Browman, H.I., C. Alonso Rodriquez, F. Béland, J. J. Cullen, R. F. Davis, J.H.M. Kouwenberg, P.S. Kuhn, B. Arthur, J.A. Runge, J. St-Pierre, and R. D. Vetter. (in review) The impact of ultraviolet radiation on marine zooplankton and ichthyoplankton: a case study from the estuary and Gulf of St. Lawrence, Canada. *Mar. Ecol. Prog. Ser.*
52. Wilmot, D. B., B. J. Javor, and R. D. Vetter. (in review) Sulfur metabolism in a thiotrophic symbiosis: the role of elemental sulfur in *Solemya reidi*. *Mar. Biol.*
53. Taylor, C.A., C. A. Kimbrell, R.D. Vetter. Evolution and phylogeography of the rockfishes *Sebastes*)

with special reference to the subgenus *Pteropodus* based on mitochondrial cytochrome *b* sequence data. (in-house review).

54. Buonaccorsi, V. P., L. Westerman, J. Stannard, and R. D. Vetter. Limited gene flow in grass rockfish, *Sebastodes rastrelliger*, suggests regional larval retention. (in-house review).